

Advantage is taken of this report to summarise our knowledge of this group in Ireland. Some 65 species in all are on record from the country, but about six of these are regarded as probably erroneously recorded.—Carleton **Rea** and Sir H. C. **Hawley**: Fungi (Clare Island Survey). Previous to the present survey only two species of fungi were on record for the county of Mayo. Some 750 species are now recorded, of which nearly 300 are new to the Irish flora. One new genus of Hyphomycetæ—*Candelospora*, **Hawley**—and one new Agaric—*Hygrophorus squamulosus*, **Rea**—are described. On Clare Island itself a list of 284 species of fungi was compiled.—A. W. **Stelfox**: Land and fresh-water Mollusca (Clare Island Survey). This group was closely studied not only on Clare Island, but along the whole coast of Mayo, and on the adjoining islands of Inishtusk, Caher, and Inishbofin, and analyses of the faunas of the different parts of the area are made. In the whole district 90 species of Mollusca were found. Of these, 58 occur on Clare Island, two of which are looked on as owing their introduction to man.

EDINBURGH.

Royal Society, January 8.—Dr. John Horne, F.R.S., vice-president, in the chair.—Dr. **Kidston** and Prof. Gwynne **Vaughan**: The Carboniferous flora of Berwickshire. Part i. *Stenomyelon tuedianum*, Kidst. The description was founded on a specimen found by the late Mr. Matheson, Jedburgh, in 1859, and additional material found in the original locality in 1901. Briefly put, it is as follows:—stem monostelic, primary xylem without xylene parenchyma, divided more or less distinctly into three lobes by as many radiating and interrupted bands of parenchyma; primary tracheæ porose on all walls, the protoxylems of the leaf traces decurrent as exarch strands on the extremities of the lobes; secondary thickening occurs, secondary tracheæ with porous pith on radial walls only; medullary rays numerous; stele closely invested by a zone of sclerotic periderm; leaf traces depart successively from the extremities of the lobes and repeatedly divide in the cortex; leaf-trace protoxylems become immersed; the outer cortex of the "Spargonium" type. The stem possesses so many features peculiar to itself that in the present state of our knowledge it is unsafe to speculate as to its relationship to the other members of the Cycadofilices. It is perhaps best to let it remain among that nebulous group in which it has already provisionally been placed by Dr. Scott. At the same time, it should be noted that the absence of independent meristeles in the cortex of the stem separates it widely from *Sutcliffia insignis*, Scott, with which one might be tempted to compare it.—Dr. F. J. **Cole**: A monograph on the general morphology of the myxinoid fishes, based on a study of Myxine. Part iv. On some peculiarities of the afferent and efferent branchial arteries of Myxine. These peculiar structures are called vascular papillæ, and have been found in some cases to be the means by which blood is passed direct from the arteries into the surrounding "lymphatic" peribranchial sinuses. Such blood re-enters the blood stream *via* the superior jugular veins. The so-called lymphatic spaces of Myxine contain normally red blood, and therefore must be excluded from the lymphatic system *sensu stricto*. They are, however, not situated directly in the course of the blood stream, but partake of the nature of both systems. The Myxinoids are in the act of acquiring a definite lymphatic system.—Prof. Sutherland **Simpson**: The effect of changing the daily routine on the diurnal rhythm in body temperature. Experiments were made on the daily variation in body temperature during travel across the American continent and across the Atlantic Ocean. It was found that the body quickly adjusted itself to the new conditions, so that the diurnal rhythm depended entirely on the daily routine.—Prof. David **Hepburn**: The Scottish National Antarctic Expedition. Observations on the Weddell seal. Part ii. The paper gave an account of the genito-urinary organs of a young *Leptonychotes weddelli*, captured and embalmed by the naturalist of the Scottish Antarctic Expedition. A detailed account was given of the following special points:—the adaptation of the pelvic organs to the great obliquity of the osseous pelvis; the allantoidal shape of the urinary bladder, which extended as far forwards as

the umbilicus; the presence of prostatic glandular tissue, as revealed by the microscope; the presence of a cylindrical piece of developing bone common to both corpora cavernosa penis; the absence of a scrotum, and the lodgment of each testis in a subcutaneous recess showing no surface bulging; the absence of vesiculæ seminales; the presence of a bilateral retractor penis muscle composed of unstriated muscle fibres, probably representing the tunics dartos of the absent scrotum.

GÖTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (physico-mathematical section), parts iv. and v. for 1911, contain the following memoirs communicated to the society:—

June 17.—K. **Wegener**: The rôle of direct radiation in the temperature-period of the air at low and middle altitudes of the troposphere.—A. **Bestelmeyer**: The path of the kathode rays proceeding from a Wehnelt kathode in a homogeneous magnetic field.

July 1.—E. **Landau**: The partition of numbers compounded of ν prime factors.—K. **Försterling**: Formulæ for the computation of the optical constants of a metallic film of given thickness from the polarisation conditions of the reflected and transmitted light.

July 29.—H. **Bohr**: The behaviour of the zeta function $\zeta(s)$ in the half-plane $\sigma > 1$.—C. **Runge**: Graphical solution of the boundary conditions of the equation

$$\frac{\partial u}{\partial x^2} + \frac{\partial u}{\partial y^2} = 0.$$

—P. **Bachmann**: Materials for a scientific biography of Gauss: (i) on Gauss's work in the theory of numbers.

September 14.—Th. v. **Kármán**: The mechanism of the resistance experienced by a moving body in a liquid.

October 13.—R. **Fricke**: The transformations of automorphic functions (dedicated to Richard Dedekind on his eightieth birthday).

October 28.—G. **Tammann**: Equations of condition in a region of small volume.—R. **Wedekind**: Contributions to the knowledge of the Upper Devonian series at the northern margin of the slate ridge (Schiefergebirge) on the right bank of the Rhine.

The Business Communications (part ii.) include a discourse on "Metamorphic Processes in the Crystalline Slates," by O. **Mügge**, and congratulatory addresses to Prof. Waldeyer, and to the Universities of Breslau, Christiania, and St. Andrews.

BOOKS RECEIVED.

The Practical Science of Billiards and its "Pointer." By Colonel C. M. Western. Pp. iv+153. (London: Simpkin and Co., Ltd.) 3s. 6d. net.

The University of Missouri Studies. Vol. ii. Science Series:—The Flora of Boulder, Colorado, and Vicinity. By Prof. F. P. Daniels. Pp. xiii+311. (University of Missouri.) 1.50 dollars.

A Shorter Geometry. By C. Godfrey, M.V.O., and A. W. Siddons. Pp. xxii+301. (Cambridge University Press.) 2s. 6d.

South African Zoology. By Prof. J. D. F. Gilchrist. Pp. xi+323. (Cape Town: T. Maskew Miller.) 10s. 6d. net.

Fortschritte der Naturwissenschaftlichen Forschung. Edited by Prof. E. Abderhalden. Vierter Band. Pp. 299. (Berlin & Wien: Urban & Schwarzenberg.) 15 marks.

The Arctic Prairies. A Canoe-journey of 2000 Miles in Search of the Caribou; being the Account of a Voyage to the Region North of Aylmer Lake. By E. Thompson Seton. Pp. xvi+415. (London: Constable and Co., Ltd.) 12s. 6d. net.

Practical Anthropology. By T. E. Smurthwaite. Pp. 40+2 charts. (London: Watts and Co.) 2s. 6d. net.

A School Chemistry. By F. R. L. Wilson and G. W. Hedley. Pp. xxii+572+diagram. (Oxford: Clarendon Press.) 4s. 6d.

Social Life in the Insect World. By J. H. Fabre. Translated by B. Miall. Pp. viii+327. (London: T. Fisher Unwin.) 10s. 6d. net.

How Other People Live. By H. Clive Barnard. Pp. 64. (London: A. and C. Black.) 1s. 6d.

An Elementary Text-book of Coal Mining. By R. Peel. Sixteenth edition. Pp. 386. (London: Blackie and Son, Ltd.) 3s.

A New Geometry. By W. M. Baker and A. A. Bourne. Books i.-iii. Pp. xxii + 122 + iii. (London: G. Bell and Sons, Ltd.) 1s. 6d.

Heat and the Principles of Thermodynamics. By Dr. C. H. Draper. New and revised edition. Pp. xv + 428. (London: Blackie and Son, Ltd.) 5s. net.

The Prescribing of Spectacles. By A. S. Percival. Second edition. Pp. v + 168. (Bristol: J. Wright and Sons, Ltd.) 5s. 6d. net.

The Problems of Philosophy. By the Hon. B. Russell, F.R.S. Pp. 255. (London: Williams and Norgate.) 1s. net.

Anthropology. By R. R. Marett. Pp. 256. (London: Williams and Norgate.) 1s. net.

Our Weather. By J. S. Fowler and W. Marriott. Pp. xi + 131. (London: J. M. Dent and Sons, Ltd.) 1s. net.

Modern Theories of Diet and their bearing upon Practical Dietetics. By Dr. A. Bryce. Pp. xv + 368. (London: E. Arnold.) 7s. 6d. net.

Tables of Logarithms and Anti-logarithms (Four Figures), 1 to 10,000. Arranged by Major-General J. C. Hannyngton. Pp. iv + 41. (London: C. and E. Layton.) 1s. 6d. net.

Tables of Logarithms and Anti-logarithms to Five Places. By E. Erskine Scott. Students' edition. Pp. iii + 383. (London: C. and E. Layton.) 5s. net.

A Nature Calendar. By Gilbert White. Edited, and with an Introduction, by W. M. Webb. Pp. xii + 62 + xiii-xx. (London: The Selborne Society.) 25s. net.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 8.

ROYAL SOCIETY, at 4.30.—The Spectrum of Comet Brooks (1911c): Sir Norman Lockyer, K.C.B., F.R.S.—A Chemically-active Modification of Nitrogen produced by the Electric Discharge. III.: Hon. R. J. Strutt, F.R.S.—The Atomic Weight of Radium: R. Whytlaw-Gray and Sir W. Ramsay, K.C.B., F.R.S.—The Emission of Electricity from Carbon at High Temperatures: Dr. J. A. Harker, F.R.S., and Dr. G. W. C. Kaye.—The So-called Thermoid Effect and the Question of Superheating of a Platinum-silver Resistance used in Continuous-flow Calorimetry: Prof. H. T. Barnes, F.R.S.—An Optical Determination of the Variation of Stress in a Thin Rectangular Plate subjected to Shear: Prof. E. G. Coker.—Spectroscopic Observations. Lithium and Cesium: Dr. P. V. Bevan.—A Metrical Analysis of Chromosome Complexes, showing Correlation between Evolutionary Development and Chromatin Thread-widths throughout the Animal Kingdom: Capt. C. F. U. Meek.

ROYAL INSTITUTION, at 3.—The Phenomena of Splashes: Prof. A. M. Worthington, C.B., F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—High Voltage Tests and Energy Losses in Insulating Materials: E. H. Rayner.

ROYAL SOCIETY OF ARTS, at 4.30.—The North-East Frontier of India: Sir Thomas H. Holdich, K.C.M.G., F.R.S.

CONCRETE INSTITUTE, at 8.—Discussion on Prof. B. Pite's paper: The Aesthetic Treatment of Concrete.

MATHEMATICAL SOCIETY, at 5.30.—On Exceptions to a Generalisation of a Theorem of Jacobi's: A. C. Dixon.—On some Properties of Groups whose orders are Primes: Prof. W. Burnside.—Some results concerning Diophantine approximations: G. H. Hardy and J. E. Littlewood.

FRIDAY, FEBRUARY 9.

ROYAL INSTITUTION, at 9.—Very High Temperatures: Dr. J. A. Harker, F.R.S.

PHYSICAL SOCIETY, at 8.—Annual General Meeting.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Anniversary Meeting.

ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—Desert of North Africa: Captain H. G. Lyons, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Steam-turbines: Some Practical Applications of Theory: Captain H. Riall Sankey, R.E.

PHYSICAL SOCIETY, at 8.—Annual General Meeting.—Presidential Address: Prof. A. Schuster, F.R.S.

MALACOLOGICAL SOCIETY, at 8.—Annual Meeting. Presidential Address: On the Lower Tertiary Mollusca of the Fayum province of Egypt: R. Bullen Newton.

ASSOCIATION OF CHEMICAL TECHNOLOGISTS (at Battersea Polytechnic), at 8.—The Structure of Metals: Dr. J. C. Humfrey.

MONDAY, FEBRUARY 12.

ROYAL SOCIETY OF ARTS, at 8.—The Meat Industry. The Sheep and its Products: Loudon M. Douglas.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Explorations in Papua: Hon. Miles S. Smith.

TUESDAY, FEBRUARY 13.

ROYAL INSTITUTION, at 3.—The Study of Genetics: Prof. W. Bateson, F.R.S.

ROYAL GEOGRAPHICAL SOCIETY, at 5.—Desert of North Africa: Captain H. G. Lyons, F.R.S.

SOCIETY OF DYERS AND COLOURISTS, at 8.—New Apparatus for the Control of Water Purification and like purposes: Hon. R. C. Parsons.—Water Treatment by means of the Permutit Process: Dr. L. H. Harrison.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Further discussion: The Water-supply of the Witwatersrand: D. C. Leitch.—Investigations Relating to the Yield of a Catchment-area in Cape Colony: E. C. Bartlett.

WEDNESDAY, FEBRUARY 14.

ROYAL SOCIETY OF ARTS, at 8.—Gem Engraving: Cecil Thomas.

ROYAL GEOGRAPHICAL SOCIETY, at 5.—Research Meeting.—Distribution of Early Bronze Age Settlements in Britain: O. G. S. Crawford.

THURSDAY, FEBRUARY 15.

ROYAL SOCIETY, at 4.30.—Probable Papers: A Specific Instance of the Transmission of acquired Characters—Investigation and Criticism: Dr. T. G. Brown.—Further Experiments on the Cross-breeding of two Races of the Moth *Acidalia virgularia*: W. B. Alexander.—On the Effects of Castration and Ovariectomy upon Sheep: F. H. A. Marshall.—The Causes and Prevention of Miners' Nystagmus: Dr. T. L. Llewellyn.—The Stomatograph: W. L. Balls.—Composition of the Blood Gases during the Respiration of Oxygen: G. A. Buckmaster and J. A. Gardner. ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—Desert of North Africa: Captain H. G. Lyons, F.R.S.

INSTITUTION OF MINING AND METALLURGY, at 8.

FRIDAY, FEBRUARY 16.

ROYAL INSTITUTION, at 9.—The Road: Past, Present and Future: Sir John H. A. Macdonald, K.C.B., F.R.S.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Annual General Meeting.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Works for the Prevention of Coast-erosion: W. T. Douglass.

CONTENTS.

PAGE

Paracelsus	473
A Carboniferous Flora. By Prof. A. C. Seward, F.R.S.	474
Early Egyptians and Ancient Civilisation. By H. R. Hall	475
Nature-Books. By A. E. Crawley	476
Food and Dietetics. By Prof. J. S. Macdonald	476
The Constants of Nature. By Dr. J. A. Harker, F.R.S.	477
Practical and Theoretical Physics	478
Our Book Shelf	479
Letters to the Editor:—	
Microscope Stands.—Conrad Beck; J. W. Ogilvy	480
The Mnemic Theory of Heredity.—Dr. J. Beard; Prof. Arthur Dendy, F.R.S.	482
The "Isothermal Layer."—Dr. John W. Evans	483
Are Eyes Ever Autophanous?—E. M. Anderson	484
Chalk and Ice. (<i>With Diagram</i>).—R. M. Deeley; D. Deeley	484
Glazed Frost.—E. R. Marle	484
The Thawing of Frozen Water Pipes.—C. E. Stromeyer	484
The Names of Fossil Plants.—Prof. T. D. A. Cockerell	484
The People of South Central Congoland. (<i>Illustrated</i>). By Sir H. H. Johnston, G.C.M.G., K.C.B.	485
The Effect of Grass on Fruit Trees. By E. J. R.	486
The Birds of Homer	487
Sir John Dalrymple-Hay, Bart., G.C.B., F.R.S.	487
Dr. A. H. Keane. By Dr. A. C. Haddon, F.R.S.	488
Notes	488
Our Astronomical Column:—	
Doubling of Martian "Canals"	494
Reported Fall of an Aërolite	494
A Bright Meteor	494
Ephemeris for Schaumasse's Comet, 1911h	494
Observations of Comets	494
Distances of Spiral Nebulae	494
Observations at the Moscow Observatory	494
Internal and Cloud Velocities of Groups of Stars in Relation to Spectral Type	494
Silk-culture in the Philippines. (<i>Illustrated</i>). By W. F. K.	495
The Recent Frost	495
Skulls and Physiognomy	495
The Second Mendeléeff Congress of Pure and Applied Chemistry and Physics	496
Relation between Height and Length of the Waves Finally Produced at Sea by Winds of any Given Speed. By Dr. Vaughan Cornish	497
Quantitative Studies in Epidemiology. By Alfred J. Lotka	497
National Systems of Education	498
University and Educational Intelligence	500
Societies and Academies	502
Books Received	505
Diary of Societies	506